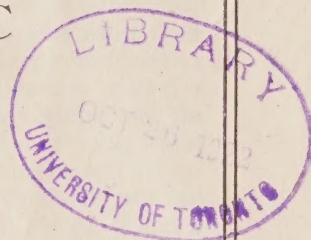


# THE WINTER FINISHING OF STEERS IN WESTERN QUEBEC

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A bunch of winter-fed steers ready for shipment

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## WINTER FINISHING OF BEEF IN THE EASTERN TOWNSHIPS

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Forty years ago the raising of beef cattle was the chief source of income for the farmers of the Eastern Townships. Hay, roots and grain, the principal crops raised, were fed to stock in the winter, the extensive areas of permanent pasture affording cheap feed during the summer. The smaller farmers usually kept their steers until they were two years old, and then sold them to the larger farmers who fitted them for the British export trade at three or four years of age. Gradually beef raising was supplanted by dairying as the growth of the large industrial centres created a market for milk and milk products. The opening up of the western plains and the consequent flooding of our markets with western beef has also tended to bring about the decline of beef raising in this part of the country. However, there is, and always will be, a demand for good beef and those who are still in the industry should not feel discouraged if they take advantage of the opportunities offered them. Careful breeding and selection of stock, feeding of home-grown roughages and skilful marketing should make beef raising still a profitable occupation in this section of the country. Too often steers are sold off the grass in the fall in an unfinished condition. By finishing them during the winter and marketing them in early spring, when prices are usually the highest, the farmer is able to realize much more because of the extra quality and finish of the winter-fed steer. In addition, he has turned his rough hay and ensilage into cash, besides helping to keep up the fertility of his farm.

### FEEDS AND RATIONS FOR WINTER FINISHING OF STEERS

The ration fed to steers after they are put in the stable depends largely upon their condition and the proposed length of the feeding period. Steers coming off the grass in a rather thin condition and which are to be fed upwards of six months, should be started on 40 pounds of ensilage per day and as much hay as they can eat up clean, for the first four weeks. After that, grain at the rate of 2 pounds per day may be given and gradually increased until the end of the feeding period, when each steer should be receiving 7 or more pounds per day depending upon its weight. As the grain ration is increased the succulent ration should be gradually decreased to 25 or 30 pounds per day.

Steers coming off the grass in the fall in fairly good condition and which are to be fed in the stable for a shorter period, say three months, should be started out at once on a grain ration of 2 pounds per day and increased to 8 or more pounds at the end of the feeding period. Ensilage at the rate of 30 to 40 pounds per day and as much hay as they will eat up clean should be fed to complete the ration.

If good pasture is available for early summer feeding, some farmers find it profitable to winter their steers on ensilage and good clover hay until the middle of March, when a small ration of grain is fed in order to turn them out on pasture in good condition about the middle of May. They will then be in a finished condition in July or August and can be marketed before prices begin to drop.

### FEEDS

*Hay.*—Timothy hay alone and timothy hay mixed with clover are the chief dry roughages fed to fattening steers in this section of the country. Timothy hay, however, is not an economical feed for beef cattle. Mixed red clover and alsike clover hay, well cured, is a much cheaper, more palatable and more nutritious roughage.



Alfalfa hay is also an excellent class of hay for beef cattle and should be used wherever conditions will permit. However, because of the long rotations practised on most farms, probably a seeding of timothy 8 lbs., red clover 10 lbs., and alsike 2 lbs., would be most suitable to produce hay for beef cattle feeding.

Sweet clover as a crop in this district is still in the experimental stages. If used at all it is to be preferred in the form of pasture or as a silage crop than as hay. For an annual hay crop a very good seeding mixture is, oats  $1\frac{1}{2}$  bushels, peas  $\frac{1}{2}$  bushel and vetches  $\frac{1}{4}$  bushel per acre. Oats alone sown at the rate of 3 bushels per acre will also give a satisfactory hay yield. For late seeding, common millet sown at the rate of 20-30 pounds per acre will give a more satisfactory yield than oats or oats, peas and vetches. Where corn cannot be grown successfully, the above-mentioned oats, peas and vetches crop makes a good ensilage mixture. As most of the straw produced on the average farm is needed for bedding it does not usually count as a dry roughage. Where a supply is available, however, it can be used to advantage provided it is balanced by succulent roughages and a grain ration rich in protein. Oat, barley and wheat straw are most valuable, in the order named.

*Ensilages.*—Corn is the most important ensilage crop throughout the Eastern Townships, although sunflowers are gaining in favour, especially in districts where corn cannot be grown successfully every year. Sunflowers should be planted in rows with the corn planter at the rate of 6 or 8 pounds per acre and cut when about 30 per cent in bloom. The varieties of corn which have given the best results in the neighbourhood of the Station are:—Compton's Early, Longfellow, Salzer's North Dakota, Early Leaming, Bailey and Northwestern Dent. In the case of sunflowers, the Mammoth Russian variety is most generally used.

*Roots.*—In the corn-growing districts roots do not form a very important item in crop production. Where corn cannot be grown successfully, however, a few acres of roots should be raised to supply the succulent part of the winter ration. Ton for ton, roots do not contain as much dry matter as corn ensilage, but they often yield a heavier tonnage per acre and are much relished by stock. On farms where corn or sunflower ensilage is fed, a few pounds of roots added to the ensilage increases the palatability. Of the root crops, swedes are usually preferred for beef cattle feeding but, under average conditions, they are not any easier to grow and do not yield quite as heavily as mangels, consequently are not as economical as the latter crop. Kangaroo, Canadian Gem and Good Luck are suitable swede varieties, while in the case of mangels the Yellow Intermediate or Half Sugar types are to be recommended.

*Grain.*—The average farm in the Eastern Townships does not produce grain for market, most of that which is raised being made up largely of oats which are used as the grain ration for the horses. Where it is possible, however, to grow sufficient grain to have a surplus for fattening steers, barley will usually give the best results. It will yield as much or more grain per acre than oats and it is a considerably better grain for fattening purposes. A mixture of grains is sometimes grown so as to get a somewhat heavier and better-balanced feed. In such a case, care must be exercised to choose varieties that ripen about the same time. A good selection would be Banner oats, OAC No. 21 barley and Arthur peas.

The economy of buying grain in order to balance the meal ration for fattening steers depends largely upon the amount and nature of the home-grown feeds available and upon the market price of mill feeds and other concentrates. To be able to feed economically, all of the roughage and the major part of the grain ration should be home-grown, leaving only the heavy concentrates such as cannot be grown on the farm, to be purchased. Where the supply of oats and barley is plentiful, some protein-rich concentrate such as oil cake or cotton seed meal, with a little bran, will be all

that is necessary. Where oats and barley are lacking, corn should be used, supplemented by the other concentrates mentioned above, especially towards the end of the feeding period. Wheat screenings are also valuable feed where they can be purchased at a fair price. Owing to their tendency to vary in quality and weed seed content, they should be bought on a graded basis only, getting a Government certificate as to the grade, which certificate will be at least a guarantee of a minimum amount of weed seeds and chaff.

Owing to the high cost of oil cake meal and cotton seed meal, not more than 1½ to 2 pounds of either of these feeds should be fed daily.

Some suitable grain mixtures for winter finishing of steers are given herewith:—

1. Ground oats 2 parts, ground corn 3 parts, bran 1 part and cotton seed meal or oil cake 1 part.
2. Ground oats 2 parts, ground barley 2 parts, cornmeal 1 part, oil cake or cotton seed meal 1 part.
3. Ground mixed grains 3 parts, cornmeal 2 parts, oil cake or cotton seed meal 1 part.

#### RATIONS

Some rations suitable for conditions as they exist in the Eastern Townships are as follows:—

No. 1. Hay 10 pounds; ensilage, beginning at 35 pounds and finishing at 25 pounds, with No. 2 grain mixture beginning at 2 pounds and finishing at 8 pounds per steer daily.

No. 2. Hay 10 pounds; roots, beginning at 55 pounds and finishing at 35 pounds, with No. 1 grain mixture beginning at 2 pounds and finishing at 10 pounds per steer daily.

#### THE VALUE OF HOME GROWN ROUGHAGE MARKETING THROUGH STEERS

In order to ascertain the value of hay and ensilage fed to steers, careful records were kept on a group of 46 head fattened at the Station during the winter of 1921-22. These steers were mostly grade Shorthorns purchased for 5½ cents per pound from farmers in the neighbourhood of the Station and sold on May 4 for 7½ cents after 179 days of winter feeding, giving a spread of two cents per pound between buying and selling price. This is a fairly good spread, or margin, on which to work. The following is a statement of the costs, gains made and the feeds used:—

Number of steers fed.. . . .	46
Number of days fed in stable.. . . .	179
Cost November 5, 1921: 40,545 pounds at 5½ cents.. . . .	\$2,229 98
Value May 4, 1922: 53,280 pounds at 7½ cents.. . . .	\$3,996 00
Gain in value in 179 days.. . . .	\$1,766 02
Average weight per steer Nov. 5, 1921.. . . .	881.4 lbs.
Average weight per steer May 4, 1922.. . . .	1,158.3 "
Average gain in weight per steer in 179 days.. . . .	276.9 "
Average daily gain.. . . .	1.54 "

The steers were started on a ration of hay and ensilage for the first month. Then a meal ration of 2 pounds per day was added and increased by one pound at the beginning of each month until the end of the feeding period when they were receiving 6 pounds of meal per day.



The average daily ration was:—

Hay.....	10	pounds
Ensilage.....	30	"
Grain.....	3.95	"

Total feed consumed for period by 46 steers:—

Hay.....	82,340 lbs. or	1,790 lbs. per steer.
Ensilage.....	247,020 " " 2 tons	1,370 " "
Meal.....	32,540 " "	707.3 lbs. "

The ensilage fed was largely corn and sunflowers mixed which was relished as well and seemed to give as good results, as corn alone.

The feed required per pound gain:—

Hay.....	6.47 lbs.
Ensilage.....	19.39 "
Meal.....	2.55 "

As the bulk of the grain fed was purchased, the market value of all the grain used is charged in the following statement. Practically all the bedding used was sawdust, the charge of \$1 per load covering cost and haulage.

#### *Expenditures*

Cost of meal fed.....	\$415 44
25 loads sawdust at \$1.....	25 00
179 days labour at \$2.50 per day.....	447 50
Interest on \$2,229.98 for 6 months at 6 per cent.....	66 90
Interest on cost of buildings \$2,000 for 12 months at 6 per cent.....	120 00
Depreciation in value of buildings and equipment 5 per cent of \$2,000.....	100 00
Total expenses (not including hay and ensilage).....	\$1,174 84

#### *Revenue*

Increase in value of 46 steers.....	\$1,766 02
325 tons manure at \$2.....	650 00
Total returns from 46 steers.....	\$2,416 02
Total costs (not including hay and ensilage).....	1,174 84
Value of hay and ensilage marketed through the steers.....	\$1,241 18

There is no method by which the value determined above for these two crops can be exactly proportioned without conducting an elimination feed test but a fairly approximate value can be arrived at on the basis of the total digestible nutrients which they contain. On this basis, figuring mixed hay to contain 950 pounds and silage 360 pounds per ton of digestible nutrients, the mixed hay proved to be worth approximately \$14.32 per ton and the silage approximately \$5.28 per ton, marketed through the steers. Including rent of land, cost of fertilizer, interest and depreciation on equipment and horse and manual labour required to make it, the cost of producing hay at the Station last year was \$8 per ton. Reckoned on a similar basis ensilage cost \$3.10 per ton. This would leave a profit over cost of production of approximately \$6.32 per ton for the hay and approximately \$2.18 per ton for the ensilage or an actual net profit of \$528.97. The average net profit per steer in this experiment would therefore be \$11.49.

## HOUSING

Some years ago practically all steers fattened during the winter were kept in tie-up stalls in a stable. When it was found, however, that dehorning could be practised without injury to the animal, the feeding of steers loose in pens began to receive attention. Competent authorities who made investigations claimed that steers fed in this way made as good, if not better, gains than those tied up in stables. In the following table the result of four years' work at the Lennoxville Station with two lots of ten steers each year is given. It shows that, independent of the saving in outlay for labour and equipment, the steers allowed to run loose made cheaper gains each year.

STEER FEEDING EXPERIMENT—LOOSE VS. TIED

	1919	1920	1921	1922	Average
Number of steers in each lot.....	10	10	10	10	10
Average weight November 1 (loose).....	838	878	877.5	725	829.6
Average weight November 1 (tied).....	853.7	932.6	1,038.8	947.5	943.2
Average weight May 1 (loose).....	1,056.5	1,187.0	1,130.5	1,029	1,100.8
Average weight May 1 (tied).....	1,060.0	1,234.0	1,251.9	1,235	1,195.2
Average gain in 6 months (loose).....	218.5	309.0	253.0	304	271.2
Average gain in 6 months (tied).....	206.3	301.4	213.1	287.5	252.0
Average daily gain in 6 months (loose).....	1.2	1.7	1.4	1.69	1.5
Average daily gain in 6 months (tied).....	1.14	1.66	1.17	1.60	1.4
<i>Feed required per pound gain</i>					
Hay (loose).....	8.6	5.8	7.7	5.9	7.0
Hay (tied).....	9.1	6.0	9.2	6.2	7.8
Ensilage (loose).....	20.7	14.6	16.6	17.7	17.4
Ensilage (tied).....	21.9	15.0	19.7	18.7	18.8
Meal (loose).....	3.3	1.9	3.3	2.6	2.28
Meal (tied).....	3.5	1.9	3.97	2.8	3.04
Cost of feed per pound gain (loose)..... cts.	14.8	9.3	12.94	10.48	11.88
Cost of feed per pound gain (tied)..... "	15.7	9.5	15.50	11.07	12.97



High grade Shorthorn steers ready for market after six months feeding in pens.

The strongest argument in favour of allowing steers to run loose in pens, however, is the saving of labour and overhead charges for equipment. Experienced feeders claim that while one man can care for, approximately, only sixty steers tied up in the stable, he can look after as many as ninety in pens. In this section of the country, where barns must be built to house all the feed required for the winter, the saving in overhead charges would be in stable equipment.



Pens should be large enough to accommodate twenty or more steers, with racks along the sides for hay and troughs made of plank for ensilage and meal. It is a good plan to have a couple of large troughs or tubs set at each end of the pens so as to have water always available for drinking. The half of a large cask or hogshead is very suitable for this purpose. Care should be taken to provide sufficient racks for feeding. A nine-hundred-pound steer requires about three feet of feeding space, which would make sixty feet of racks for a pen of twenty steers. If the soil is properly drained, an earth floor is all that is necessary.

The placing of the doors for the removal of the manure will depend upon the length of the stable and the number of pens. Where there are several pens, a good plan would be to have wide doors at each end of the stable and between the pens so that a team and sleigh or wagon could be driven through when removing the manure. There is much less loss of fertility in the manure when it is removed directly to the field than when it is allowed to lie in a heap in the barnyard.

Steers, whether running loose in pens or tied, will make better gains if allowed plenty of sunlight and ventilation. Windows should be high enough to prevent their being broken and should be hinged so that they can be opened inwards to allow fresh air to enter. Exercise in the yard on fine days will keep the steers in good health and make them relish their feed better.

#### CARE OF STEERS IN THE STABLE

The success of the winter feeding of beef cattle depends largely upon the carefulness and experience of the feeder. Regular feeding and proper rations are necessary before the animal can make economical gains. If a steer goes off his feed, unless the proper remedies are given at once the result is a loss in weight or perhaps the death of the animal. A stock of medicines, such as Epsom salts, raw linseed oil, castor oil, etc., should always be kept for emergencies. Salt fed in the grain ration at the rate of a heaping teaspoonful per steer per day is a splendid conditioner.

*Vermin.*—For the prevention of vermin, the stable should be thoroughly cleaned of dust and cobwebs and sprayed with a 5 per cent solution of carbolic acid in white-wash, before the cattle are stabled in the fall. If lice are present on the animals, the heads, necks, shoulders and backs should be clipped and a proper solution of a coal tar disinfectant applied. A good dusting mixture is:—four parts of cement and one part of hellebore. Whether the dusting or washing method is used, it should be repeated every ten days until the lice disappear.

#### DEHORNING

When feeding steers loose in pens, it is necessary to have the horns removed, as otherwise they are apt to injure each other. If treated before the calf is two weeks old, the growth of the horns can be checked by rubbing the buttons or scurs with moistened caustic potash. Care should be exercised, however, to prevent the potash from injuring the side of the calf's head or the hands of the operator. If dehorning has been delayed until the horns have grown out, they should be removed with a saw or the dehorning clippers. Sawing is a slower process, but causes less loss of blood than when the clippers are used. Animals do not suffer very much whichever process is used and the chances of death from loss of blood are very small. Care should be taken to have the work done properly as otherwise the horns are apt to commence growing again and disfigure or injure the animal by growing in towards the head. Buyers always prefer dehorned steers because there is less liability of injury and loss in the cars or at the stockyards. From the feeder's standpoint, dehorned steers are easier and safer to handle and make more economical gains.



## PREPARING STEERS FOR SHIPMENT

In order to obtain the best price it is necessary to have the steers look as presentable as possible at shipping time. Clean, well-cared-for animals will catch the eye of the buyer, whether in the stable or in the stockyard, much more quickly than those which have manure sticking to their quarters and otherwise show evidence of lack of attention.

Before loading on cars they should be fed only very lightly on ensilage or roots as they are apt to scour and a heavy shrinkage will be the result. Good, clean hay and a light grain ration, fed just before shipping, will give the best results.

## MARKETING

The margin of profit which the farmer makes on his beef cattle depends often upon the way he buys and sells. A study of the market reports for a number of years back reveals the fact that the best prices for beef prevail during the five winter months from December to April inclusive. One advantage of winter feeding, therefore, is that steers can be purchased in the fall when prices are low and marketed during the winter or in the spring when prices are usually high. In order to make a worthwhile gain there should be a margin of at least two cents per pound between the buying and selling prices.

Steers coming off the grass in good condition may be fed for marketing in January or February. On the other hand, feeders stabled in a thin condition should be fed for five or six months and marketed at Easter or along about the first of May. The main idea in steer feeding is to market when they have made their maximum gains and before the cost of feed per pound gain begins to go up.

In the early days, steers were kept until they were three or four years old, the reason being that it was more economical to export heavy animals as the steamer charges were so much per head. To-day, however, the Canadian market demands well-finished steers weighing 1,000 to 1,200 pounds at two years of age. The British export trade demands a heavier steer weighing 1,200 pounds and over. Too many of what are called export steers, however, are sold in an unfinished condition, which tends to bring discredit on Canadian beef as compared with American or Argentine beef.

The shipping of beef cattle in this section of the country is generally done by drovers or commission merchants who pay so much per pound for the stock weighed at the shipping point. The farmer should keep in touch with the prices, however, through the weekly publications of the Live Stock Branch or the market reports in the newspapers, for even a quarter of a cent a pound made through knowledge of the market prices is so much added to the net farm income.

## THE BEEF STEER

When selecting feeders for winter fattening, particular attention should be paid to beef type as shown by the form, constitution and quality of the animal.

In form, a good feeder should be low, thickset and blocky rather than rangy and upstanding. The topline should be strong and the underline straight, carrying the depth well back to the hind flank. A short, wide head with a prominent, placid eye and a large muzzle is a sign of a thrifty animal. The neck should be short and thick and blend well into the shoulders which should not be too prominent. Depth and thickness back of the shoulder, a good spring of rib and width between the forelegs are evidence of a rugged constitution. The spring of rib should be carried well back giving a long, large barrel with plenty of capacity for handling food to the best advantage. The back should be broad and flat with a level rump and good length

from the hooks to the tail head. Width at the pinbones, thickness through the thighs and fullness at the twist are very desirable. The skin should be soft, mellow and pliable, with glossy hair. General smoothness and evenness of covering with fineness of bone are indications that the animal will dress out a high percentage of choice beef when finished and slaughtered.

Finish in a steer is indicated by a well-covered back and smoothness over the rump and pinbones. Rolls of fat at the sides and at the tail head are objectionable. Fullness at the base of the tongue and at the neck vein, a low full flank, a full twist and a bulging or thickness at the thighs all indicate that the animal has reached the maximum weight for profit. Select stockers with as good breeding and conformation as possible of any of the three beef breeds, Shorthorns, Herefords or Aberdeen Angus, for profitable feeders.

### SUMMARY

Condensed, the preceding information may be given as follows:—

1. Home grown roughage marketed through steers helps to keep up the fertility of the farm.
2. Steer feeding supplies remunerative employment during the winter months.
3. Expensive stables and equipment are not necessary as steers fed in large pens make better and cheaper gains than those tied up.
4. Stables should be disinfected as a preventive against vermin and a stock of remedies kept on hand for emergencies.
5. Dehorned steers are easier and safer to handle and make more economical gains.
6. The best steers make the best gains.
7. Buy in the fall when prices are lowest and market during the winter when finished beef is scarce and prices are the highest.
8. Finish the animals sufficiently to command the highest price.





